Overview of the Pacific Northwest Aquatic Monitoring Partnership (PNAMP)

Gretchen Hayslip
U. S. Environmental Protection Agency
April 30, 2014

pacific northwest aquatic monitoring partnership

ACOE

BLM

BPA

CDFW

Colville Tribes

CRITFC

EPA

IDFG

NOAA

NWIFC

NPCC

OWEB

PSMFC

USBR

USFS

USGS

WDFW

WA ECY

WA GSRO

WA RCO

20 Signatory Partners form the steering committee

4 full-time staff

Everyone is welcome to participate

PNAMP Mission Statement

To provide a forum to enhance the capacity of multiple entities to collaborate to produce an effective and comprehensive network of aquatic monitoring programs in the Pacific Northwest based on sound science designed to inform public policy and resource management decisions.

Two Primary Objectives of PNAMP

1. Align and integrate how we monitor and collect data

Examples

- Habitat Status & Trends Monitoring Lower Columbia River
- Linking Macroinvertebrates and Fish Productivity
- Macroinvertebrate PNW Standard Taxonomic Effort

2. Plan for data sharing and sustain data sharing infrastructure

Examples:

- MonitoringResources.org
  - Monitoring Methods
  - Sample Designer
  - Monitoring Explorer

Habitat Status and Trends Monitoring (HSTM) for the Lower Columbia

Phase I (Feb 2012 – June 2013)

- Coordinate efforts by municipal stormwater managers in Southwest Washington with fish status and trend monitoring programs.
- To result in a large-scale status and trends monitoring (probabilistic) program to address multi-scale questions about status and trends of physical, chemical and biological attributes, including those influenced by stormwater and by salmon recovery actions.
- 4 workshops, 2 teleconference work sessions, 3 reports summarize the work
- Contact Amy Puls (apuls@usgs.gov)

DEPARTMENT OF ECOLOGY State of Washington

CITY OF LONGVIEW WASHINGTON

CELEBRATING 10 YEARS LOWER COLUMBIA FISH RECOVERY BOARD 1998 ~ 2008 OF FISH RECOVERY

TETRA TECH

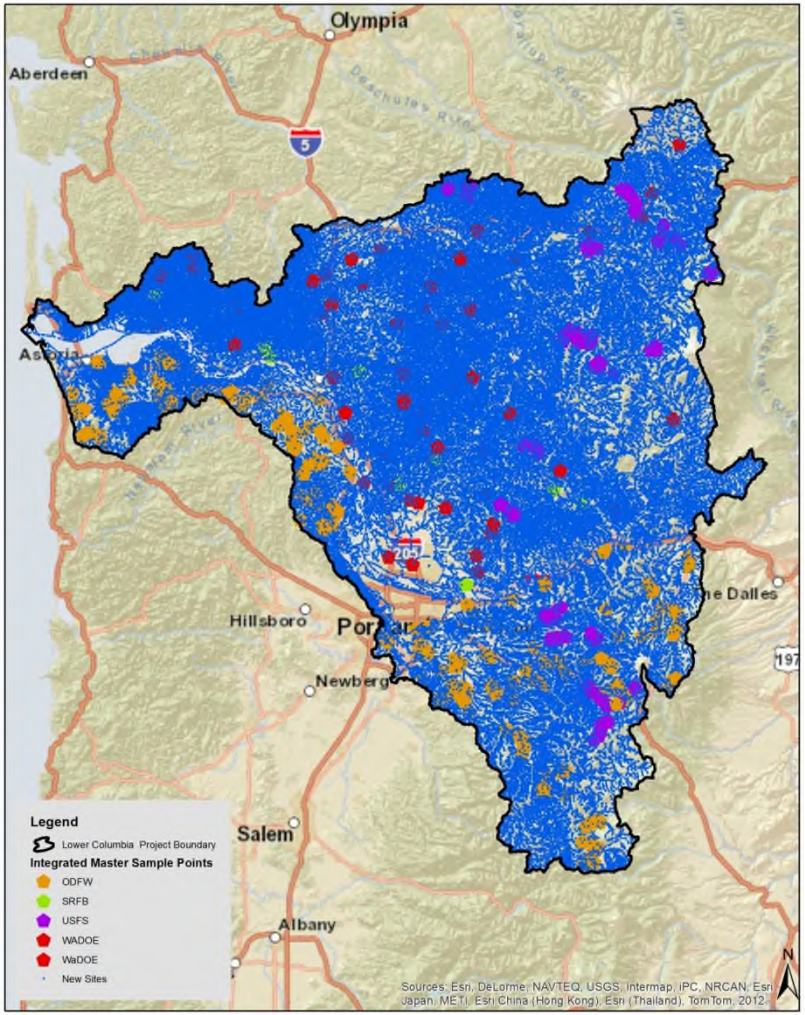
sitka technology group

pacific northwest aquatic monitoring partnership

Habitat Status and Trends Monitoring (HSTM) for the Lower Columbia

Phase I - Results

- Summarized management questions and objectives
- Developed list of metrics necessary to answer management questions
- Evaluated alternative monitoring scenarios
- Conducted tradeoff analysis for alternative monitoring scenarios
- Evaluated monitoring design elements
- Developed Final Recommendation



HSTM Integrated Master Sample

Habitat Status and Trends Monitoring (HSTM) for the Lower Columbia

Phase II (Oct 2013 – Feb 2015)

- Objectives
  1. Finalize the monitoring design
  2. Create a pilot study design and implementation plan to test the monitoring strategy; and
  3. Implement an outreach program to get feedback and share ideas among stakeholders and interested parties.

Another Example of Aligning and Integrating Data

Linking Macroinvertebrates and Fish Productivity

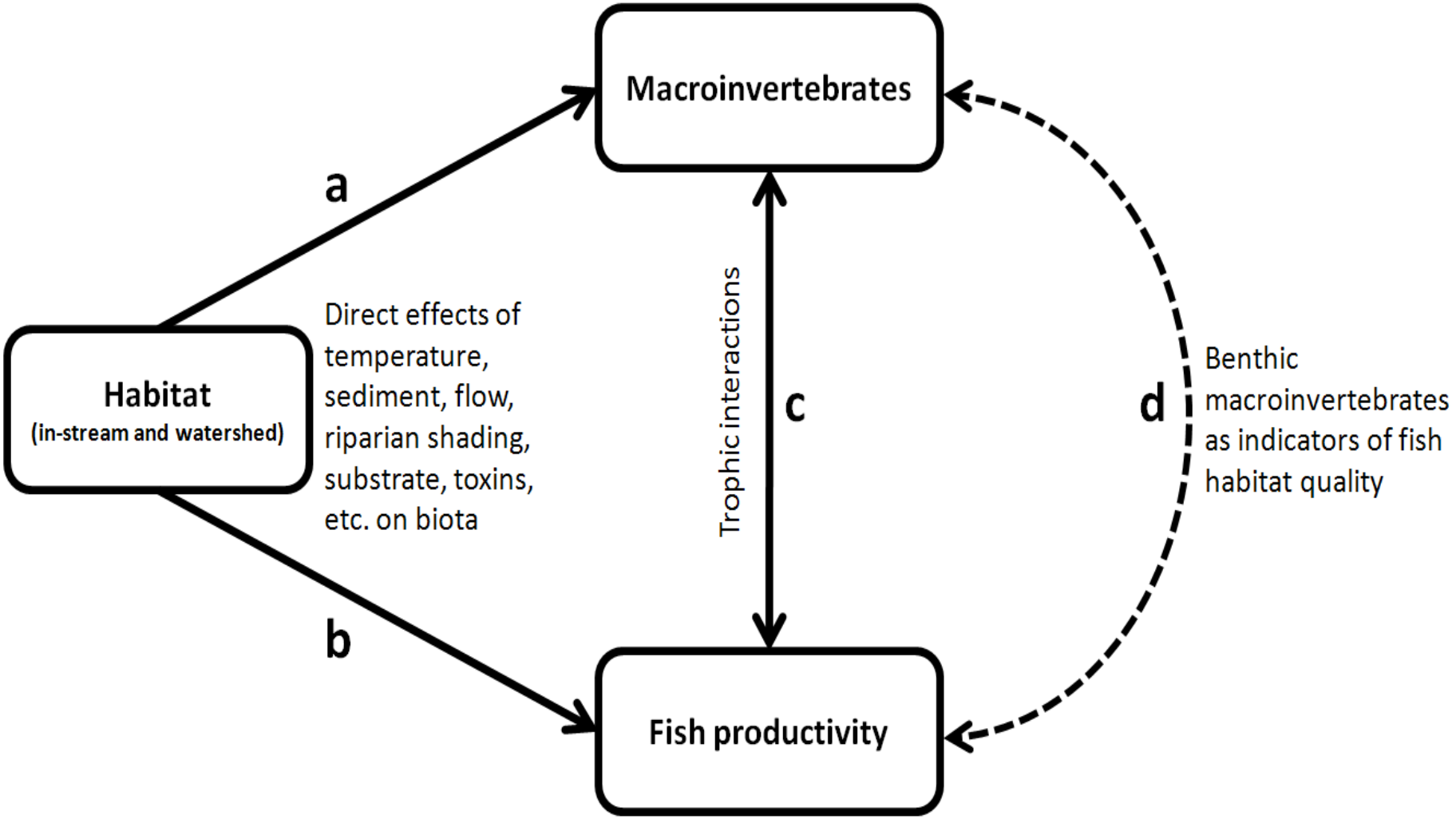
WHY

Currently MI assemblages have scant consideration in the assessment of fish productivity and habitat quality for fish.

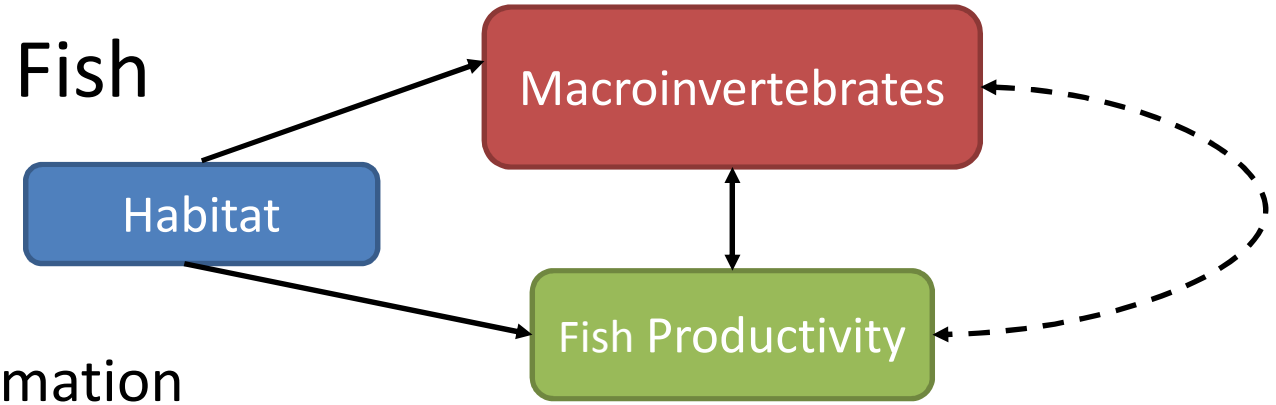
Examination of the relationship among MIs, habitat, and fish may inform the development of improved metrics and indicators useful for assessing the effectiveness of habitat restoration projects and for describing the value of a habitat toward fish productivity.

HOW

Symposium with a panel
discussion at Oregon AFS Feb 2013
to explore issues, opportunities, and next steps.


Macroinvertebrates
a
Habitat
(in-stream and watershed)
Direct effects of
temperature,
sediment, flow,
riparian shading,
substrate, toxins,
etc. on biota
Trophic interactions
c
d
Benthic
macroinvertebrates
as indicators of fish
habitat quality
b
Fish productivity

Linking MIs and Fish



NEXT STEPS

A) Using existing information

- Mine existing data sets linking BMIs, fish metrics, and habitat conditions
- Conduct a literature review or meta-analysis linking BMI indices, fish metrics, and fish habitat

B) Research on secondary production/food webs

- Conduct studies to understand invertebrate production in order to use ecosystem-based approaches for linking fishes to their food
- Resolve our understanding of food webs, as relevant to fish
- Development of a salmonid foraging index- Improve existing foraging models

Another Example of Aligning and Integrating Data

Northwest Standard Taxonomic Effort (NWSTE)

WHY To improve macroinvertebrate data sharing across the Pacific Northwest

HOW Standardized taxonomic nomenclature and resolution to use when identifying macroinvertebrates

NWSTE Taxa Lists Update

Groups ready for review

Bivalvia, Elmidae, Ephemeroptera, Gastropoda, Neuroptera, Plecoptera, Trichoptera

Groups in progress

Chironomidae, Crustacea, Dytiscidae, Hemiptera, Megaloptera, Misc. Diptera, Misc. non-insects, Odonata, Oligochaeta

Still to go

Hydrophilidae, Lepidoptera, Misc. other Coleoptera, Provisional taxa

Project Webpage:

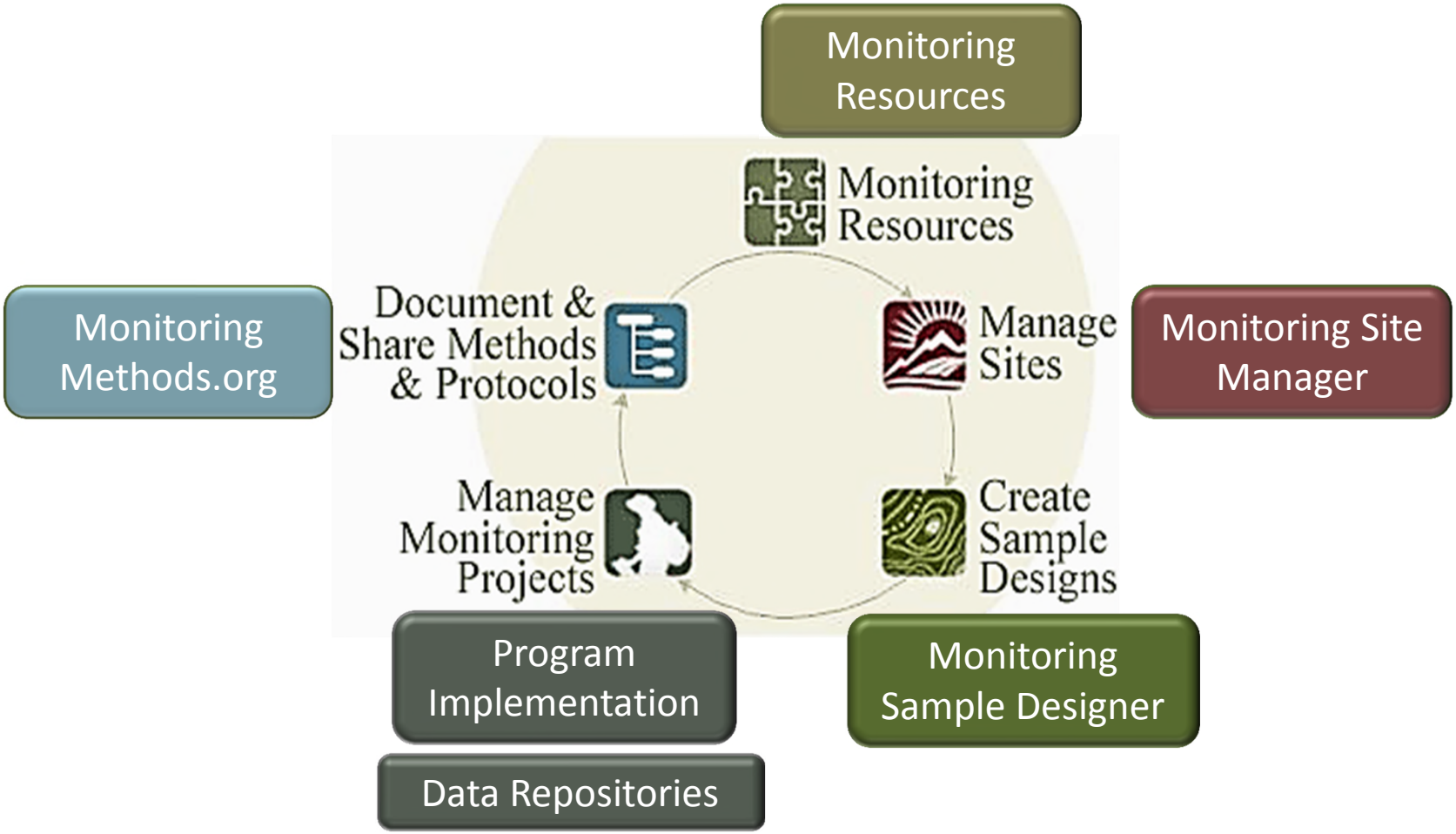
http://www.pnamp.org/project/4210

Plan for data sharing and sustain data sharing infrastructure

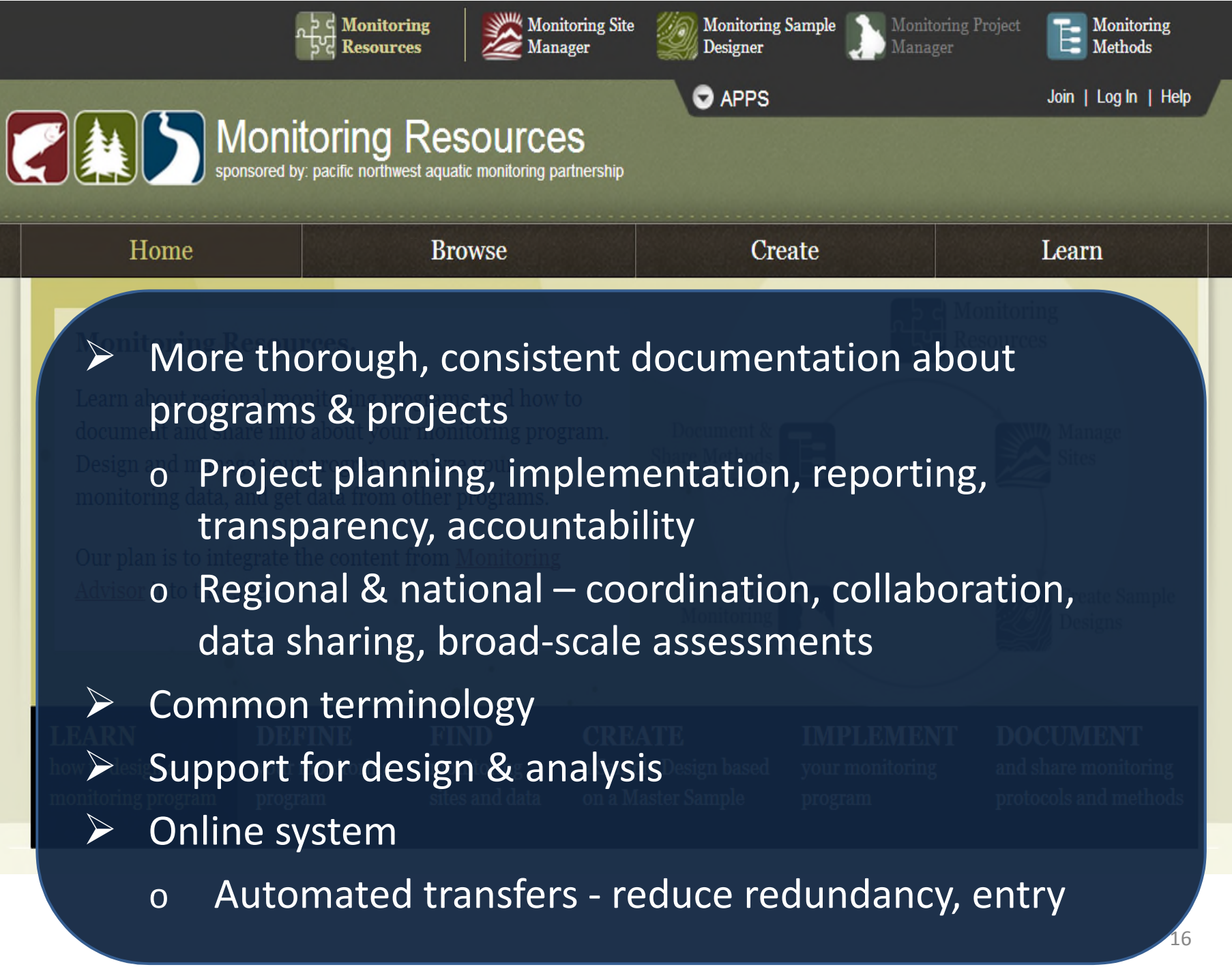
We need to have more thorough, consistent documentation available about our programs and projects to support multiple needs.

- Access to information about implementation that can be shared across region
- Leads to data discovery & more efficient sharing of results
- Leads to collaboration, greater efficiency
- Leads to recommendations for funders & practitioners

PNAMP's Suite of Web Resources



www.monitoringresources.org



- More thorough, consistent documentation about programs & projects
  - Project planning, implementation, reporting, transparency, accountability
  - Regional & national – coordination, collaboration, data sharing, broad-scale assessments
- Common terminology
- Support for design & analysis
- Online system
  - Automated transfers - reduce redundancy, entry

APPS | Join | Log In | Help

Monitoring Methods

a Monitoring Resources tool

sponsored by: pacific northwest aquatic monitoring partnership

Search Protocols & Methods GO

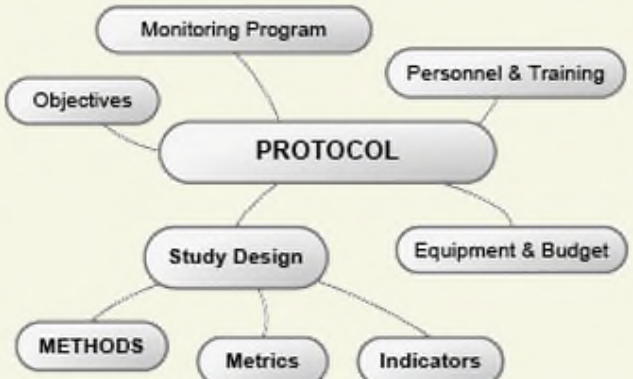
Home | Browse | Create | Learn | Collaborate

Learn More:

About this Site | Glossary of Terms | Training Videos | Frequently Asked Questions

Our Anatomy of a Protocol

"Protocol" is one of those terms that means many things to many people. Check out our definition to get a quick idea of what this application is about.



Recent Discussions

Below is a quick summary of recent discussions

RECENTLY DISCUSSED:

"Method to be deleted soon - ref (id:746)" on Method: 362
08/13/2013 11:36 AM by Jac

"Review comments " on Method
08/12/2013 07:50 AM by Jac

"Method Review " on Method: 65
08/07/2013 09:12 AM by Reb

Reply to "Method Review " on M
08/07/2013 09:12 AM by Rebecca Scully

How can we help you?

New to the Monitoring Methods site? Not sure where to begin? Select the user type below that best describes you and we'll show you how to get the most out of the

- Promote consistent documentation
- Improve access to information
- Promote community discussions
- Streamline creation of metadata
- Help increase interoperability between data systems

25 Protocols published out of 825

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Print Subscribe

PROTOCOL DETAILS | COMMENTS | CHANGE LOG | PHOTOS & FORMS | EDIT PROTOCOL | IMPLEMENTATION NOTES

Expand All | Collapse All

Basics & Objectives

BACKGROUND / RATIONALE

An effective water quality management program must be based upon an accurate and complete understanding of water quality conditions within the state. Water monitoring and assessment are the foundations for sound water quality management. The Oregon DEQ water monitoring and assessment strategy is based upon providing reliable, high quality water quality information that will address the short term and long term information needs of the data users.

The state of Oregon boasts an abundance and diversity of water resources. Nine major estuaries are situated along the coast of the Pacific Ocean; 6000 lakes and reservoirs are scattered throughout the state, including many pure lakes in the high Cascade Mountain region. A network of over 110,000 miles of rivers and streams cross and border the state, with groundwater aquifers lying beneath the surface.

The Oregon Department of Environmental Quality (ODEQ) is that state agency responsible for protecting water quality throughout Oregon. The Water Quality Division within DEQ administers the Water Quality Program. Monitoring and evaluation are essential components of Oregon's water pollution control programs. The basis for documenting water quality conditions is provided by routine or ambient sampling at established river and estuary stations.

MONITORING PROGRAM

ODEQ Ambient Water Quality Monitoring Program

OBJECTIVES FOR THIS PROTOCOL

Provide conventional pollutant data that is used to determine baseline water quality.
To answer the basic questions:Does water quality meet standards?
To answer the basic questions: How does water quality vary spatially across the state?
Provide conventional pollutant data that is used to determine general problem areas needing further investigation.
Provide conventional pollutant data that is used to determine management effectiveness.
The objective is to provide information that can answer basic questions. This will lead to an informed public and will help achieve wise water quality management policies.
Provide conventional pollutant data that is used to determine long-term trending.

KEY ASSUMPTIONS

Ideally, the purpose of the WMA sections is to provide the data user with timely and useful data of known quality in an understandable fashion. However, potential conflicts may occur when time and resources are scarce. Therefore, priorities need to be established. While each monitoring situation is unique and must be assessed, the following are generalized priorities for monitoring:

Top priority shall be given to data collection that is needed because the safety, health or well being of the citizens of Oregon is at risk (e.g. pesticide spill).

DETAILS

ID: 1976
State: Draft
Version: 1.0
Purpose: Status and Trends Monitoring
Owner: Rebecca Scully
Sponsoring Org: <none>

Referenced: 0 times
# of Methods: 13
Est. Cost / Site: <none>
Full Details:
Most Recent Comment by: <none>

Created: 10/24/2013 12:12 PM
Created by: Rebecca Scully
Updated: 10/30/2013 12:49 PM
Updated by: Rebecca Scully

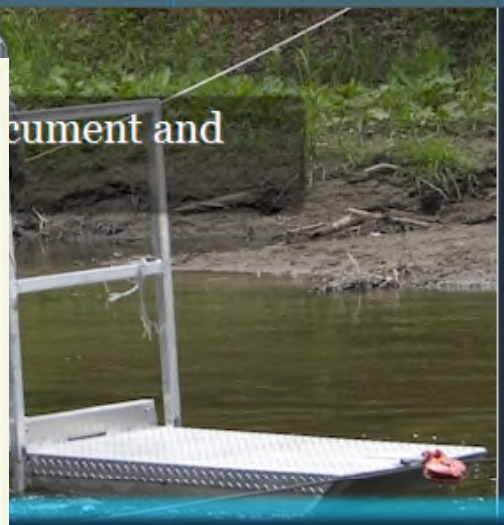
Completeness: (71%)

Subscribers: <none>

Tags:

Edit Tags

Version History:
v1.0 (Draft) (10/24/2013)



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ove access to information
ote community discussions
mline creation of metadata
increase interoperability
een data systems

Quick Stats

With a growing number of Protocols and Methods, it can be difficult to keep up.

AS OF SEPTEMBER 5, 2013:

APPS Join | Log In | Help

Monitoring Sample Designer

a Monitoring Resources tool

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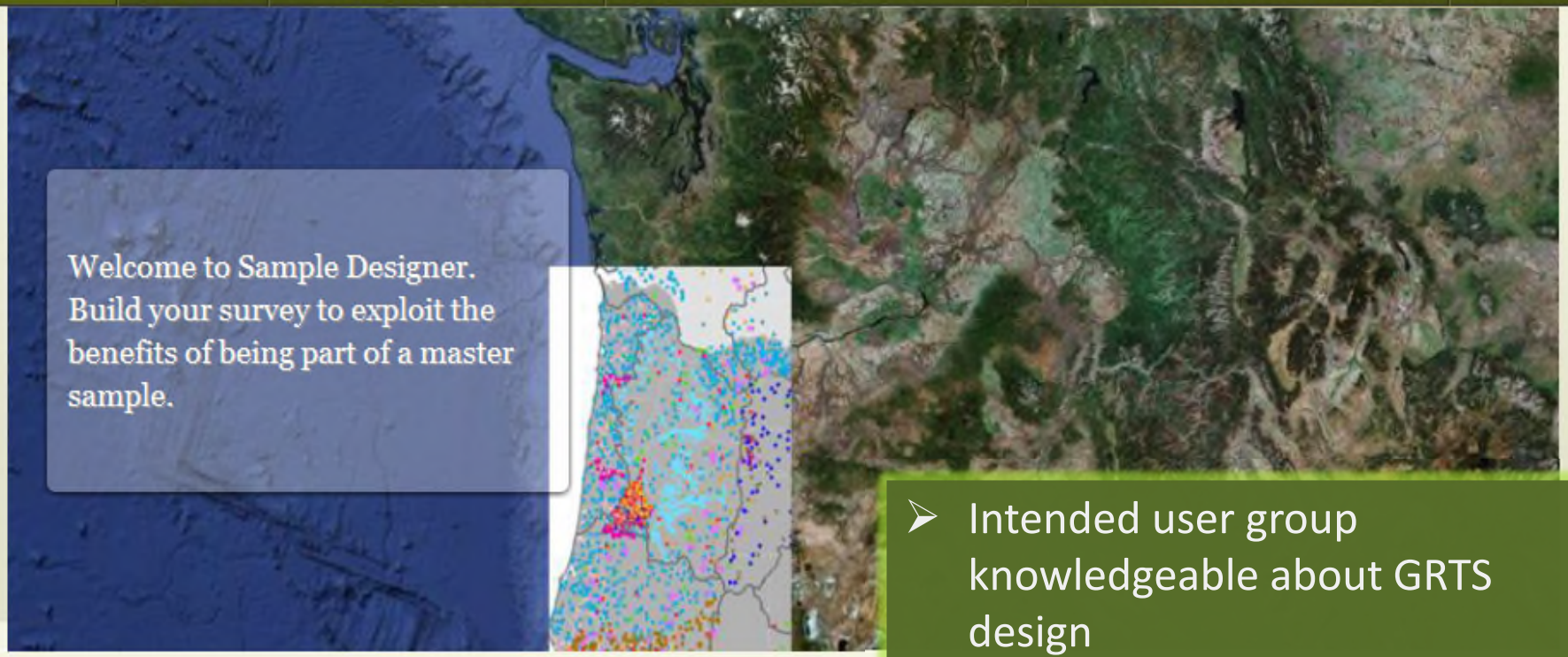
Home | Explore | Design Sample | Evaluate Site Status | Analyze Field Data | About



Explore

Learn the steps in designing surveys wit samples.

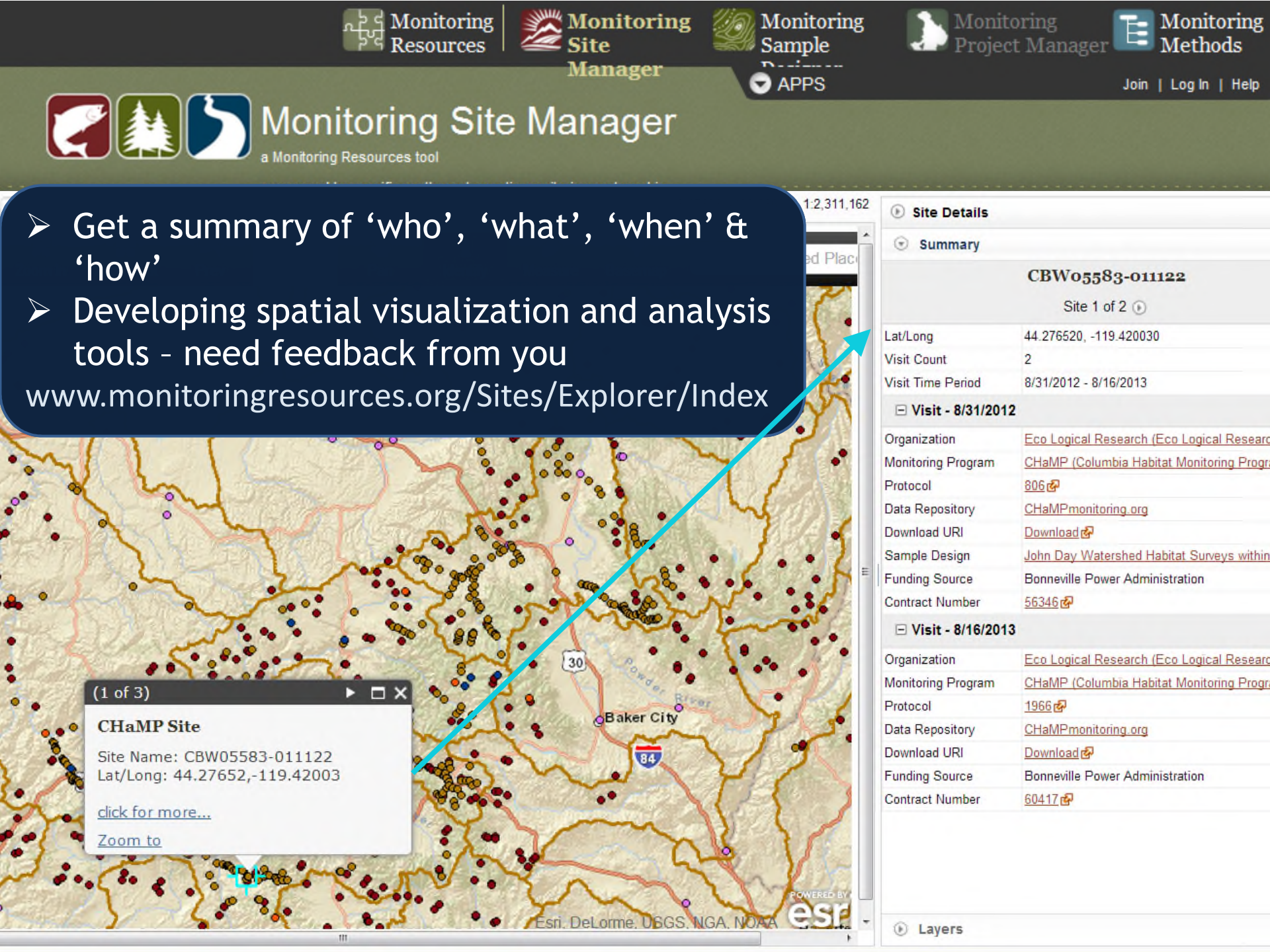
- Read about GRTS master sample monitoring.
- Investigate individual master samples at Monitoring Sites.

Design Sample

Build your sample survey.

- Answer a few questions to see if this tool is for you, and to plan
- Select one or more master samples as the source of your sampl
- Define your survey's frame.

- Intended user group knowledgeable about GRTS design
- Support development of statistically robust GRTS design using a Master Sample, document your design
- Output shapefile of sample sites


Monitoring Resources
Monitoring Site Manager
Monitoring Sample
Monitoring Project Manager
Monitoring Methods
APPS
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Monitoring Site Manager
a Monitoring Resources tool
Get a summary of 'who', 'what', 'when' & 'how'
Developing spatial visualization and analysis tools – need feedback from you
www.monitoringresources.org/Sites/Explorer/Index
1:2,311,162
(1 of 3)
CHaMP Site
Site Name: CBW05583-011122
Lat/Long: 44.27652,-119.42003
click for more...
Zoom to
Baker City
30
84
Powder River
Esri, DeLorme, USGS, NGA, NOAA
Site Details
Summary
CBW05583-011122
Site 1 of 2
Lat/Long 44.276520, -119.420030
Visit Count 2
Visit Time Period 8/31/2012 - 8/16/2013
Visit - 8/31/2012
Organization Eco Logical Research (Eco Logical Researc
Monitoring Program CHaMP (Columbia Habitat Monitoring Progr
Protocol 806
Data Repository CHaMPmonitoring.org
Download URI Download
Sample Design John Day Watershed Habitat Surveys within
Funding Source Bonneville Power Administration
Contract Number 56346
Visit - 8/16/2013
Organization Eco Logical Research (Eco Logical Researc
Monitoring Program CHaMP (Columbia Habitat Monitoring Progr
Protocol 1966
Data Repository CHaMPmonitoring.org
Download URI Download
Funding Source Bonneville Power Administration
Contract Number 60417
Layers

Monitoring Explorer

- Many organizations collect data, but few share location, visit history, and protocol information in readily available, standardized machine readable formats
- Result = programs are not well coordinated
- Solution = Monitoring Metadata Exchange (MMX)
- Standardizing and sharing the who, what, when, where, and how of data collection efforts benefits funders and practitioners alike
- Next steps: PNAMP working group will develop a metadata exchange standard

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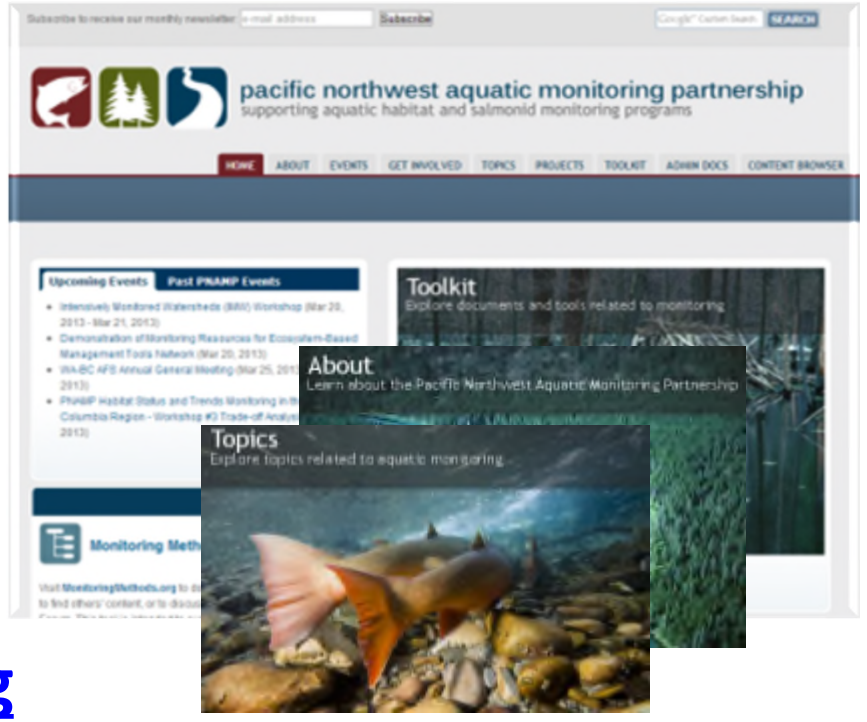
Communicate & Coordinate

Sustain Collaboration

Improve Data Access



Learn more at :

www.pnamp.org

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